



# SPEC<sup>®</sup> CFP2006 Result

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## Huawei

SPECfp<sup>®</sup>\_rate2006 = 361

Huawei RH1288 V2 (Intel Xeon E5-2630 2.30 GHz)

SPECfp\_rate\_base2006 = 355

CPU2006 license: 3175

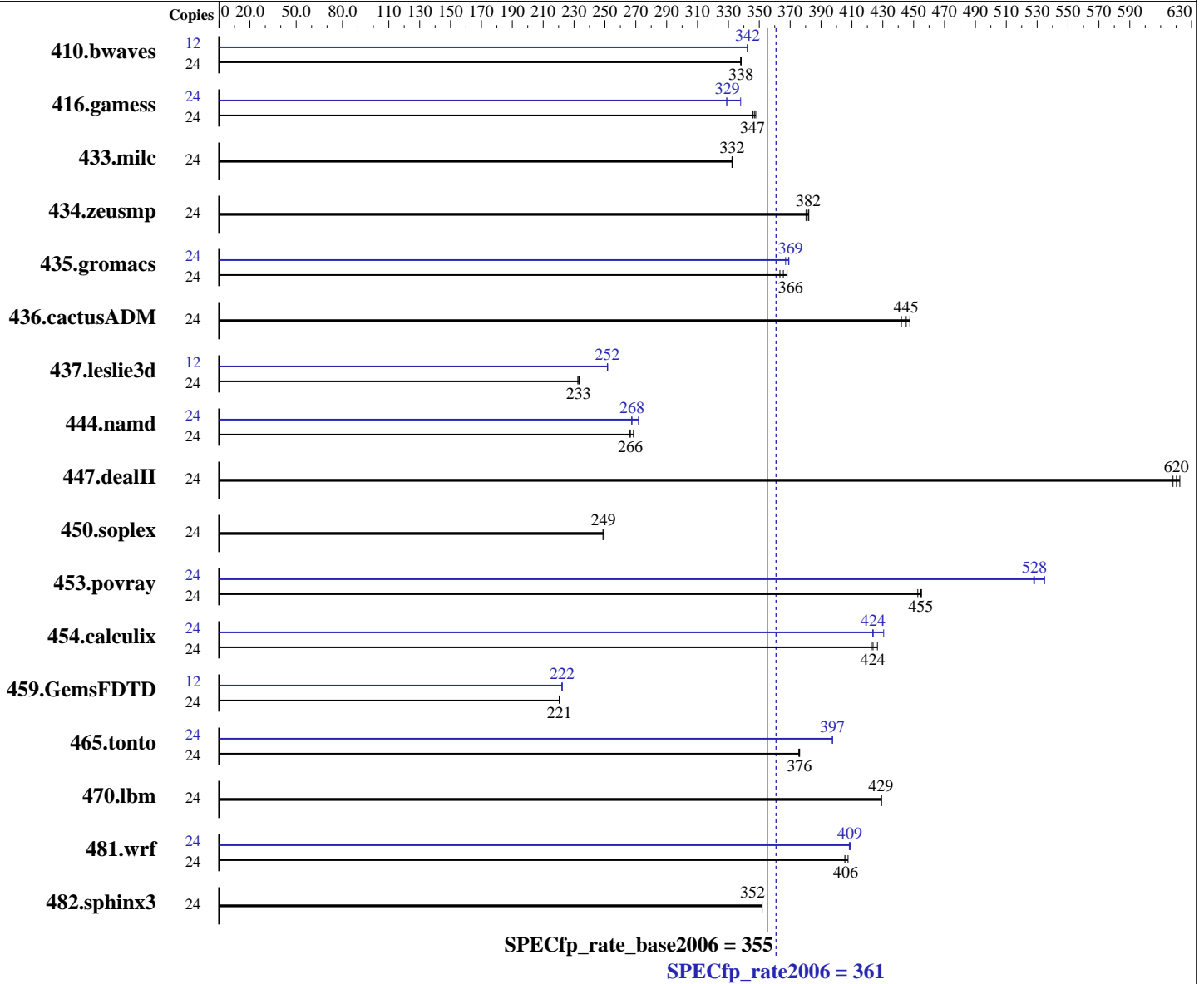
Test sponsor: Huawei

Tested by: Huawei

Test date: Jun-2013

Hardware Availability: May-2012

Software Availability: Feb-2013



### Hardware

CPU Name: Intel Xeon E5-2630  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz  
 CPU MHz: 2300  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core  
 CPU(s) orderable: 1,2 chip  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 256 KB I+D on chip per core

Continued on next page

### Software

Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)  
 2.6.32-358.el6.x86\_64  
 Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;  
 Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux  
 Auto Parallel: No  
 File System: ext4

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L3 Cache: 15 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)  
 Disk Subsystem: 1 x 500 GB SATA, 7200 RPM  
 Other Hardware: None

System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: None

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	24	<b><u>964</u></b>	<b><u>338</u></b>	964	338	965	338	12	476	343	477	342	<b><u>476</u></b>	<b><u>342</u></b>
416.gamess	24	1351	348	<b><u>1355</u></b>	<b><u>347</u></b>	1358	346	24	1391	338	<b><u>1427</u></b>	<b><u>329</u></b>	1429	329
433.milc	24	<b><u>663</u></b>	<b><u>332</u></b>	663	332	662	333	24	<b><u>663</u></b>	<b><u>332</u></b>	663	332	662	333
434.zeusmp	24	574	380	572	382	<b><u>572</u></b>	<b><u>382</u></b>	24	574	380	572	382	<b><u>572</u></b>	<b><u>382</u></b>
435.gromacs	24	466	368	<b><u>469</u></b>	<b><u>366</u></b>	472	363	24	464	369	<b><u>464</u></b>	<b><u>369</u></b>	467	367
436.cactusADM	24	<b><u>644</u></b>	<b><u>445</u></b>	641	448	649	442	24	<b><u>644</u></b>	<b><u>445</u></b>	641	448	649	442
437.leslie3d	24	967	233	<b><u>968</u></b>	<b><u>233</u></b>	971	232	12	<b><u>448</u></b>	<b><u>252</u></b>	448	252	448	252
444.namd	24	717	268	723	266	<b><u>722</u></b>	<b><u>266</u></b>	24	<b><u>719</u></b>	<b><u>268</u></b>	708	272	720	267
447.dealII	24	444	618	<b><u>443</u></b>	<b><u>620</u></b>	441	622	24	444	618	<b><u>443</u></b>	<b><u>620</u></b>	441	622
450.soplex	24	802	249	805	249	<b><u>804</u></b>	<b><u>249</u></b>	24	802	249	805	249	<b><u>804</u></b>	<b><u>249</u></b>
453.povray	24	281	455	282	453	<b><u>281</u></b>	<b><u>455</u></b>	24	<b><u>242</u></b>	<b><u>528</u></b>	239	535	242	528
454.calculix	24	464	427	469	423	<b><u>467</u></b>	<b><u>424</u></b>	24	460	431	468	423	<b><u>467</u></b>	<b><u>424</u></b>
459.GemsFDTD	24	1153	221	1155	220	<b><u>1155</u></b>	<b><u>221</u></b>	12	573	222	573	222	<b><u>573</u></b>	<b><u>222</u></b>
465.tonto	24	<b><u>628</u></b>	<b><u>376</u></b>	629	376	628	376	24	594	397	<b><u>594</u></b>	<b><u>397</u></b>	595	397
470.lbm	24	768	429	769	429	<b><u>769</u></b>	<b><u>429</u></b>	24	768	429	769	429	<b><u>769</u></b>	<b><u>429</u></b>
481.wrf	24	658	407	<b><u>660</u></b>	<b><u>406</u></b>	661	405	24	655	409	657	408	<b><u>656</u></b>	<b><u>409</u></b>
482.sphinx3	24	1329	352	<b><u>1330</u></b>	<b><u>352</u></b>	1330	352	24	1329	352	<b><u>1330</u></b>	<b><u>352</u></b>	1330	352

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"  
Select only test related files when installing the operating system



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Test date: Jun-2013

Hardware Availability: May-2012

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### Platform Notes

BIOS configuration:

Set Power Efficiency Mode to Performance

Baseboard Management Controller used to adjust the fan speed to 100%

Sysinfo program /spec/config/sysinfo.rev6800

\$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3

running on localhost Sat Jun 1 14:54:03 2013

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:

<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

From /proc/cpuinfo

model name : Intel(R) Xeon(R) CPU E5-2630 0 @ 2.30GHz

2 "physical id"s (chips)

24 "processors"

cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

cpu cores : 6

siblings : 12

physical 0: cores 0 1 2 3 4 5

physical 1: cores 0 1 2 3 4 5

cache size : 15360 KB

From /proc/meminfo

MemTotal: 132117844 kB

HugePages\_Total: 0

Hugepagesize: 2048 kB

/usr/bin/lsb\_release -d

Red Hat Enterprise Linux Server release 6.4 (Santiago)

From /etc/\*release\* /etc/\*version\*

redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)

system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)

system-release-cpe: cpe:/o:redhat:enterprise\_linux:6server:ga:server

uname -a:

Linux localhost 2.6.32-358.el6.x86\_64 #1 SMP Tue Jan 29 11:47:41 EST 2013

x86\_64 x86\_64 x86\_64 GNU/Linux

run-level 3 Jun 1 01:47

SPEC is set to: /spec

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda2	ext4	193G	44G	139G	25%	/

Additional information from dmidecode:

(End of data from sysinfo program)



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## General Notes

Environment variables set by runspec before the start of the run:  
LD\_LIBRARY\_PATH = "/spec/libs/32:/spec/libs/64"

Binaries compiled on a system with 2 x Xeon X5645 CPU + 16GB memory using RHEL 6.1

Transparent Huge Pages enabled with:

```
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
```

Filesystem page cache cleared with:

```
echo 1 > /proc/sys/vm/drop_caches
```

runspec command invoked through numactl i.e.:

```
numactl --interleave=all runspec <etc>
```

## Base Compiler Invocation

C benchmarks:

```
icc -m64
```

C++ benchmarks:

```
icpc -m64
```

Fortran benchmarks:

```
ifort -m64
```

Benchmarks using both Fortran and C:

```
icc -m64 ifort -m64
```

## Base Portability Flags

```

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.deallI: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

```



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## Base Optimization Flags

C benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3

Fortran benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch

Benchmarks using both Fortran and C:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3

## Peak Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## Peak Portability Flags

410.bwaves: -DSPEC\_CPU\_LP64  
416.gamess: -DSPEC\_CPU\_LP64  
433.milc: -DSPEC\_CPU\_LP64  
434.zeusmp: -DSPEC\_CPU\_LP64  
435.gromacs: -DSPEC\_CPU\_LP64 -nofor\_main  
436.cactusADM: -DSPEC\_CPU\_LP64 -nofor\_main  
437.leslie3d: -DSPEC\_CPU\_LP64  
444.namd: -DSPEC\_CPU\_LP64  
447.dealII: -DSPEC\_CPU\_LP64  
450.soplex: -DSPEC\_CPU\_LP64  
453.povray: -DSPEC\_CPU\_LP64  
454.calculix: -DSPEC\_CPU\_LP64 -nofor\_main  
465.tonto: -DSPEC\_CPU\_LP64  
470.lbm: -DSPEC\_CPU\_LP64

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Software Availability: Feb-2013

## Peak Portability Flags (Continued)

481.wrf: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_CASE\_FLAG -DSPEC\_CPU\_LINUX  
482.sphinx3: -DSPEC\_CPU\_LP64

## Peak Optimization Flags

### C benchmarks:

433.milc: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

### C++ benchmarks:

444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -fno-alias  
-auto-ilp32

447.dealIII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -auto-ilp32  
-opt-mem-layout-trans=3

### Fortran benchmarks:

410.bwaves: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -static

416.gamess: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2  
-inline-level=0 -scalar-rep- -static

434.zeusmp: basepeak = yes

437.leslie3d: -xAVX -ipo -O3 -no-prec-div -static -opt-prefetch

459.GemsFDTD: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto  
-inline-calloc -opt-malloc-options=3

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## Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

```
435.gromacs: -xAVX(pass 2) -prof-gen(pass 1) -ipo -O3 -no-prec-div
             -prof-use(pass 2) -xSSE4.2 -opt-prefetch -static
             -auto-ilp32 -opt-mem-layout-trans=3
```

```
436.cactusADM: basepeak = yes
```

```
454.calculix: -xAVX -ipo -O3 -no-prec-div -static -auto-ilp32
             -opt-mem-layout-trans=3
```

```
481.wrf: Same as 454.calculix
```

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.html>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-revE.20121120.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-revE.20121120.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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